

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
5 December 2002 (05.12.2002)

PCT

(10) International Publication Number
WO 2002/096501 A3

(51) International Patent Classification⁷: **A61B 8/00**

(21) International Application Number:
PCT/US2002/016417

(22) International Filing Date: 28 May 2002 (28.05.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/294,135 29 May 2001 (29.05.2001) US
10/000,000 22 May 2002 (22.05.2002) US

(71) Applicant: **ETHICON ENDO-SURGERY, INC.**
[US/US]; 4545 Creek Road, Cincinnati, OH 45242 (US).

(72) Inventors: **MAKIN, Inder, Raj., S.**; 11388 Donwiddle Drive, Loveland, OH 45140 (US). **DUNKI-JACOBS, Robert**; 4600 Wesley Court, Mason, OH 45040 (US).

(74) Agents: **JOHNSON, Philip, S.** et al.; Johnson & Johnson, One Johnson & Johnson Plaza, New Brunswick, NJ 45242 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.

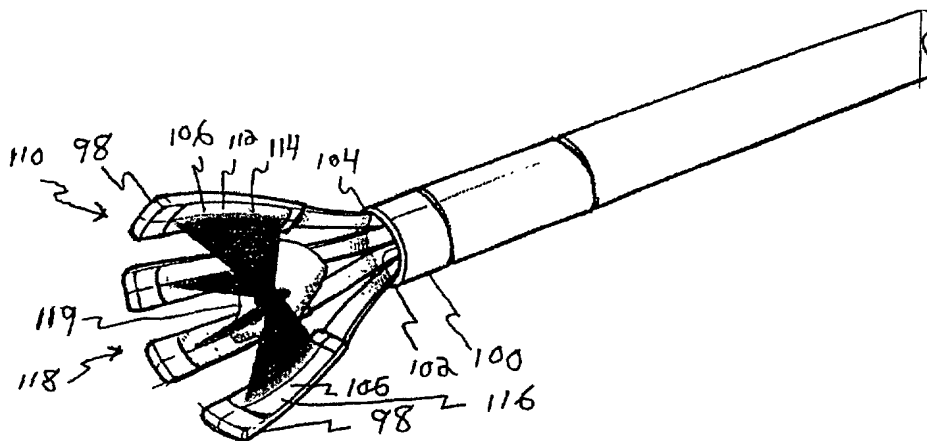
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

(88) Date of publication of the international search report:
11 March 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FACETED ULTRASOUND MEDICAL TRANSDUCER ASSEMBLY



(57) Abstract: An ultrasound medical system (10) includes an ultrasound transducer assembly which is insertable into a patient (14), which has a longitudinal axis, and which has a plurality P of ultrasound transducers (20, 26). Each transducer (20, 26) has an ultrasound-emitting surface oriented at an angle of substantially 360/P degrees apart from the ultrasound-emitting surface of an adjacent transducer when viewed in a cross section of the transducer assembly taken by a cutting plane which is perpendicular to the longitudinal axis. In one example, the ultrasound transducer assembly is an ultrasound imaging transducer assembly, an ultrasound medical-treatment transducer assembly, or an ultrasound imaging and medical-treatment transducer assembly.

WO 2002/096501 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/16417

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61B 8/00
US CL : 600/439, 443, 447, 471

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 600/407-471; 601/2, 3; 607/9-122; 73/625, 626; 29/25.35;

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3,779,234 A (Eggleton et al.) 18 December 1973 (18.12.1973), the entire document, especially Figs. 2-3 and col. 2, lines 26-65.	1 and 2
---		-----
Y		3-40
Y	US 6,053,868 A (Geistert et al.) 25 April 2000 (25.04.2000), the entire document.	3-40
A	US 5,031,626 A (Hassler et al.) 16 July 1991 (16..07.1991), Fig. 1.	1-40

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

26 August 2002 (26.08.2002)

Date of mailing of the international search report

26 MAR 2003

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Mark D. Lindsey Sr.
Ali Hman

Telephone No. 703-308-1148

INTERNATIONAL SEARCH REPORT

PCT/US02/16417

Continuation of B. FIELDS SEARCHED Item 3:

EAST 1.2

search terms: ultrasound, transducer, angle, treatment, image, medical, wavelength